



CATEGORY:

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414 Rec'd PCT/PTO 21 DEC 2000

FORM PTO-1390 REV. 5-93		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER P00,1884
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/720557
INTERNATIONAL APPLICATION NO. PCT/EP99/00815	INTERNATIONAL FILING DATE 8 February 1999	PRIORITY DATE CLAIMED 30 June 1998	
TITLE OF INVENTION "METHOD FOR OPTIMISING THE TRANSMISSION CAPACITY AVAILABLE IN CUSTOMER ACCESS NETWORKS"			
APPLICANT(S) FOR DO/EO/US Stefan SCHRÖDER			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US) 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 			
Items 11. to 16. below concern other document(s) or information included:			
<ol style="list-style-type: none"> 11. <input type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report). 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. (SEE ATTACHED ENVELOPE) 13. <input checked="" type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> Submittal of Drawings b. <input checked="" type="checkbox"/> EXPRESS MAIL #EL 655302894US, dated December 21, 2000. 			

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.51)

097720557

INTERNATIONAL APPLICATION NO.
PCT/EP99/008151ATTORNEY'S DOCKET NUMBER
P00,188417. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):**

Search Report has been prepared by the EPO or JPO \$860.00

International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) .. \$700.00

No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but
international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$770.00Neither international preliminary examination fee (37 C.F.R. 1.482) nor international
search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$1040.00International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

CALCULATIONS

PTO USE ONLY

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 C.F.R. 1.492(e)).

\$

Claims

Number Filed

Number
Extra

Rate

Total Claims

6 - 20 =

X \$ 18.00

\$

Independent Claims

1 - 3 =

X \$ 80.00

\$.00

Multiple Dependent Claims

\$270.00 +

\$

TOTAL OF ABOVE CALCULATIONS =

\$ 860.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must
also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)

\$

SUBTOTAL =

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(f)).

+

\$

TOTAL NATIONAL FEE =

\$ 860.00

Fee for recording the enclosed assignment (37 C.F.R. 1.21(h). The assignment must be
accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property

+

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TOTAL FEES ENCLOSED =

\$ 860.00

Amount to be
refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A
duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 501519. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be
filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Schiff Hardin & Waite
Patent Department
6600 Sears Tower
Chicago, Illinois 60606

SIGNATURE

Melvin A. Robinson

NAME

31,870

Registration Number

528 Rec'd PCT/PTO 21 DEC 2000

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

"PRELIMINARY AMENDMENT"

TITLE--;

after the title, insert --

BACKGROUND OF THE INVENTION

Field of the Invention--;

5 in line 3, before "invention" insert --present-- and delete "according to the preamble of patent";

10 in line 4, delete "claim 1" and insert --for the transmission of information via subscriber line networks, comprising a plurality of subscribers that are brought together via at least one subscriber line network via which information are routed according to an xDSL transmission method, modem units that are arranged at both sides of a subscriber line, and a control logic via which settings in the subscriber line network are undertaken--;

after line 4, insert --

Description of the Related Art--;

15 in line 8, before "xDSL" insert --a--;
in line 14, before "service" insert --a--;
after line 27, insert --

SUMMARY OF THE INVENTION--; and

replace line 28 with the following --The present invention is based on an object of providing a way of how the--.

20 On page 2, in line 1, delete "preamble of patent claim 1," and insert --foregoing--;

25 in line 2, delete "the features recited in the characterizing part hereof." and insert --at least one communication channel being provided between a modem unit and the control logic, information with respect to the bandwidth present on the allocated subscriber line being conducted thereover.--;

in line 6, delete "recited in the subclaims." and insert --characterized in

09/20/99 12:40 PM

that the modem units are arranged in the subscriber line network. Alternately, the modem units are arranged at the subscriber. The information exchange via the communication channel can ensue periodically or on demand. In a preferred embodiment, at least one communication channel is transmitted via carriers that are not line-bound.--;

after line 6, insert --

BRIEF DESCRIPTION OF THE DRAWINGS--;

after line 8, insert --

Figure 1 is a functional block diagram illustrating the present invention.--;

after line 8, insert --

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--;

and

in line 16, change "node" to --node SN--.

On page 3, after line 24, add the following new paragraph --

Although other modifications and changes may be suggested by those skilled in the art, it is the intention of the inventors to embody within the patent warranted hereon all changes and modifications as reasonably and properly come within the scope of their contribution to the art.--.

IN THE CLAIMS

On page 4, line 1, change "Patent Claims" to --We Claim:--.

Amend claim 1 as follows:

1. (Amended) A method [Method] for transmission of information via subscriber line networks, comprising the steps of:
bringing together a plurality of subscribers [(TLN₁...TLN_n)] that are brought together] via at least one subscriber line network [(AN)] via which

information are routed according to an xDSL transmission method,
[comprising] including
providing modem units [(M₁...M_n)] that are arranged] at both sides of a subscriber
line, [and comprising]
5 providing a control logic [(SN)] via which settings in the subscriber line network
[(AN)] are undertaken,
[characterized in that] providing at least one communication channel [(K) is
provided] between a modem unit [(M₁...M_n)] and the control logic,
information with respect to [the] bandwidth present on [the] an allocated
10 subscriber line being conducted thereover.

2.(Amended) A method [Method] according to claim 1, further
comprising the step of: [characterized in that]
providing the modem units [(M₁...M_n)] are arranged] in the subscriber line network
[(AN)].

15 3.(Amended) A method [Method] according to claim 1, further
comprising the step of: [characterized in that]
providing the modem units [(M₁...M_n)] are arranged] at the subscriber
[(TLN₁...TLN_n)].

20 4.(Amended) A method [Method] according to claim 1 [through 3],
[characterized in that the] periodically exchanging information via the
communication channel [(K) ensues periodically].

5.(Amended) A method [Method] according to claim 1 [through 3],
[characterized in that the] exchanging information [exchange] via the

communication channel [(K) ensues] on demand.

6.(Amended) A method [Method] according to claim 1, wherein [one of the preceding claims, characterized in that] the at least one communication channel [(K)] is transmitted via carrier that are not line-bound.

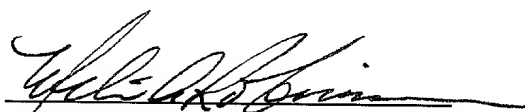
5 **IN THE ABSTRACT**

In line 1, change "Abstract" to --Abstract of the Disclosure--;
delete lines 2-3; and
delete line 11.

REMARKS

10 The foregoing amendments to the specification and claims under Article 41 of the Patent Cooperation Treaty place the application into a form for prosecution before the U.S. Patent and Trademark Office under 35 U.S.C. §371. Accordingly, entry of these amendments before examination on the merits is hereby requested.

15 Respectfully submitted,



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20

ATTORNEY FOR APPLICANT

**METHOD FOR OPTIMIZING THE AVAILABLE TRANSMISSION
CAPACITY AT SUBSCRIBER LINE NETWORKS**

The invention is directed to a method according to the preamble of patent claim 1.

5 In subscriber line networks (access networks), information are exchanged between subscriber and subscriber line network in the Prior Art according to an xDSL transmission method known to a person skilled in the art. For example, the ADSL or HDSL transmission method can be employed as xDSL method. In such transmission methods, the maximally possible transmission capacity is highly dependent on the
10 physical boundary conditions that prevail in the subscriber line network during the transmission event. Thus, for example, length and diameter of the subscriber line as well as the guidance in the bundle with other subscriber lines play a decisive part.

In typical subscriber line networks, further, all connections are controlled and monitored by an allocated control logic referred to as service node (SN). For
15 example, this service node implements a 'connection admission control' for each connection setup request coming from the subscriber or coming from the network. This means that a check is undertaken to see whether sufficient transmission capacity is available in order to connect the requested connection through to the subscriber.

The subscriber lines are terminated via modem units at both sides. The
20 currently available modems automatically adapt to the physical boundary conditions that are present at the time. When these conditions change, for example because another xDSL subscriber is added in the same line bundle, then the modems must re-adapt since the transmission capacity may potentially be reduced, for example due to crosstalk. This leads to a reduction of the available bandwidth.

25 When, following the adaptation event, it is not possible to again obtain the original transmission capacity, the appertaining xDSL link is taken out of operation. This leads to undesired service interruptions.

The invention is based on the object of disclosing a way of how the transmission of information in subscriber line networks can be more flexibly designed
30 for xDSL subscribers.

Proceeding from the features recited in the preamble of patent claim 1, the invention is achieved by the features recited in the characterizing part thereof.

It is especially advantageous in the invention that no service interruption is undertaken when a lower bandwidth is available after the adaptation event. When a
5 higher bandwidth is available, the user can use this immediately.

Advantageous developments of the invention are recited in the subclaims.

The invention is explained in greater detail below on the basis of a graphically illustrated exemplary embodiment.

In accord therewith, a subscriber line network AN is shown that is brought
10 to a plurality of subscribers $TLN_1...TLN_n$. Modem units $M_1...M_n$ via which information are communicated to the respectively allocated subscribers $TLN_1...TLN_n$ are arranged in the subscriber line network AN. Only the modem units arranged in the network are shown in the Figure. The settings in the subscriber line network AN are acquired and administered by an allocated service node SN.

15 It is inventively proposed that a specific maintenance communication be produced between an xDSL modem unit M_x and the service node. When the physical boundary conditions change in that, for example, crosstalk occurs in the bundle from one of the other subscribers, then the modems re-adapt since the transmission capacity may be reduced. In this case, the service node is informed of this fact via the
20 maintenance communication. When the bandwidth is reduced, the new bandwidth can be subsequently investigated to see whether newly added connections can still be allowed.

The transmission of information is thus continued despite a lower available transmission capacity. When an increase in the bandwidth occurs, this does
25 not remain unused (as in the Prior Art) but is immediately available for further connections. The service interruption time is thus reduced. Further, it is possible for the subscriber to continue to use the previous services, albeit to a limited extent. Finally, the network operator avoids high revenue losses.

The specific maintenance communication is realized by introduction of a
30 maintenance communication channel K between the xDSL modem unit M_x and the service node SN. The connection control mechanisms can thus remain in the service

node. Likewise, the basic architectures of existing and future subscriber line networks can remain the same. This involves a considerable reduction in costs for the network operator. When a higher transmission capacity derives in a re-adaptation of the xDSL link, then this method also allows this capacity to be utilized. The subscriber is thus
5 offered a better service and the revenue feasibility of the network operator is enhanced.

The coupling between the xDSL modem unit and the service node can ensue in any desired way. Thus, the maintenance communication channel K can be connected between the service node SN and the network-side or subscriber-side
10 modem units. As a result thereof, it is possible to keep xDSL links in operation even given modified transmission capacity and to reduce the service interruption times.

For example, the communication channel can be realized as a separate time slot in TDM systems and also as a separate ATM channel or as specific ATM control cells in ATM-based networks. A realization is possible in the same way or,
15 on the other hand, via a radio link. It is also conceivable to realize this communication channel via a TMN connection. The information exchange can thereby ensue periodically or on demand. It is also provided to allow the xDSL modem unit to communicate autonomously with the service node or only in response to requests. When a plurality of xDSL modem units are situated in the subscriber line
20 network, then the communication channels thereof can be bundled to form a service node. Certain minimum transmission rates and/or the change granularity can also be prescribed. In the service node, of course, the information about the xDSL transmission capacity actually available can be employed for purposes other than the 'connection admission control'.

Patent Claims

1. Method for the transmission of information via subscriber line networks, comprising
 a plurality of subscribers ($TLN_1...TLN_n$) that are brought together via at least one
 5 subscriber line network (AN) via which information are routed according to an xDSL transmission method, comprising
 modem units ($M_1...M_n$) that are arranged at both sides of a subscriber line, and comprising
 a control logic (SN) via which settings in the subscriber line network (AN) are
 10 undertaken,
 characterized in that at least one communication channel (K) is provided between a modem unit ($M_1...M_n$) and the control logic, information with respect to the bandwidth present on the allocated subscriber line being conducted thereover.
2. Method according to claim 1, characterized in that the modem units
 15 ($M_1...M_n$) are arranged in the subscriber line network (AN).
3. Method according to claim 1, characterized in that the modem units ($M_1...M_n$) are arranged at the subscriber ($TLN_1...TLN_n$).
4. Method according to claim 1 through 3, characterized in that the information exchange via the communication channel (K) ensues periodically.
- 20 5. Method according to claim 1 through 3, characterized in that the information exchange via the communication channel (K) ensues on demand.
6. Method according to one of the preceding claims, characterized in that the at least one communication channel (K) is transmitted via carrier that are not line-bound.

Abstract**METHOD FOR OPTIMIZING THE AVAILABLE TRANSMISSION CAPACITY
AT SUBSCRIBER LINE NETWORKS**

In subscriber line networks via which information are exchanged
5 according to an xDSL transmission method, there is the problem that the maximally
possible transmission capacity is highly dependent on the physical boundary
conditions. When these change, the modems must re-adapt. When the original
transmission capacity is no longer achieved, the xDSL link is taken out of operation.
The invention solves this problem in that a communication channel is provided
10 between modem and a central control logic.

Figure

09/720557

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- 1 -

IN THE UNITED STATES ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

"SUBMITTAL OF DRAWINGS"

5 APPLICANT: Stefan SCHRÖDER

SERIAL NO.: EXAMINER:

FILING DATE: ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/EP99/00815

INTERNATIONAL FILING DATE: 8 February 1999

10 INVENTION: METHOD FOR OPTIMISING THE TRANSMISSION
CAPACITY AVAILABLE IN CUSTOMER ACCESS
NETWORKS

Hon. Assistant Commissioner for Patents
Box PCT


15 Washington D.C. 20231

SIR:

Enclosed is a copy of the single drawing sheet as filed. Also enclosed is
a second copy of the drawing with proposed drawing changes marked in red.

Approval of the proposed changes is hereby requested.

20 Respectfully submitted,

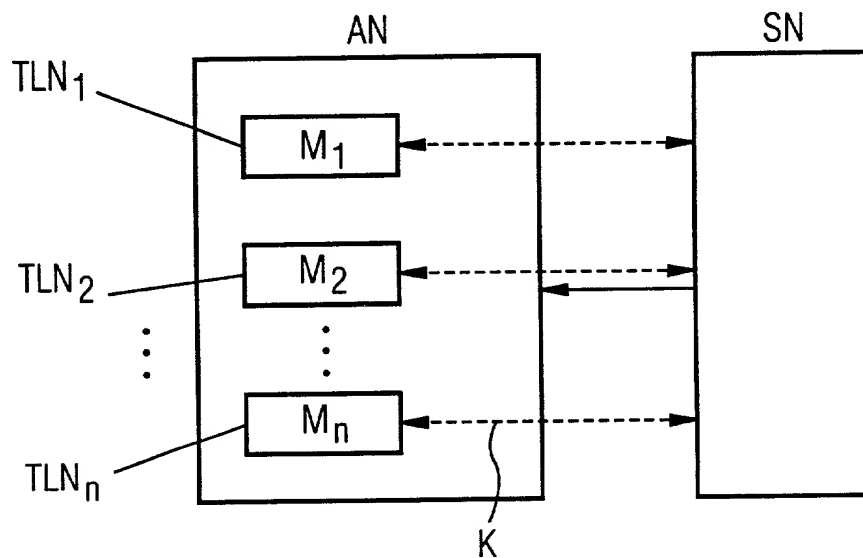

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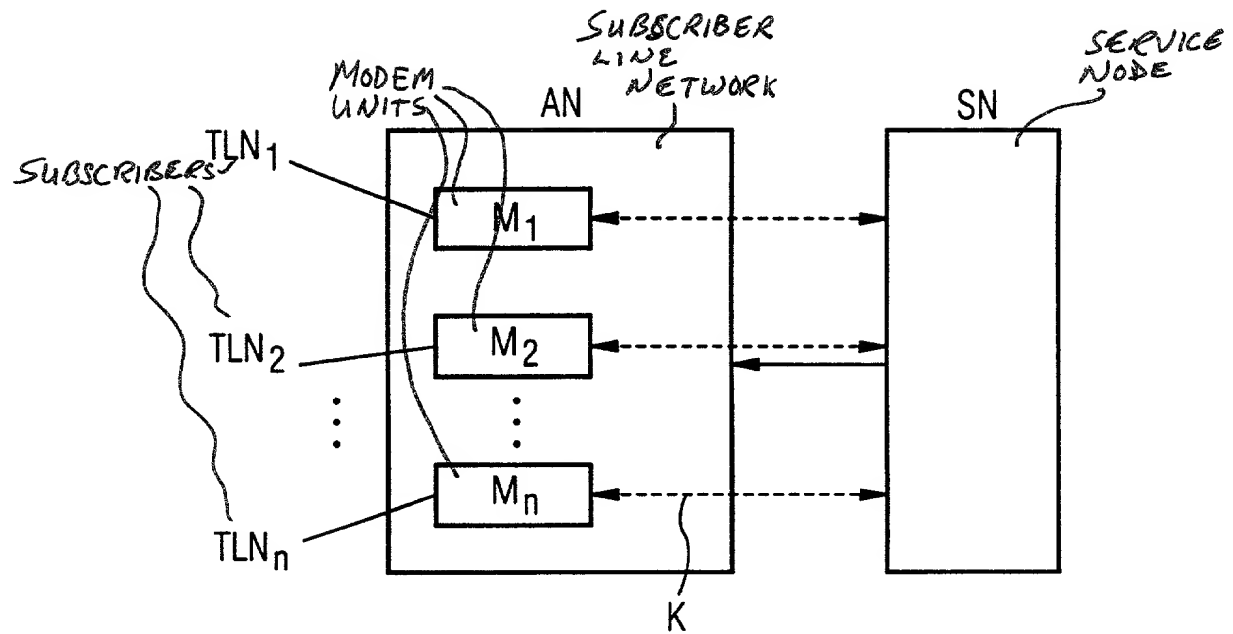
ATTORNEY FOR APPLICANT

001-221-6502/60

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09/720557

Rec'd PCT/PTC 21 DEC 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

"CHANGE OF ADDRESS OF APPLICANTS' REPRESENTATIVE"

APPLICANT: Stefan SCHRÖDER

SERIAL NO.: EXAMINER:

FILING DATE: ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/EP99/00815

INTERNATIONAL FILING DATE: 8 February 1999

INVENTION: METHOD FOR OPTIMISING THE TRANSMISSION CAPACITY
AVAILABLE IN CUSTOMER ACCESS NETWORKS

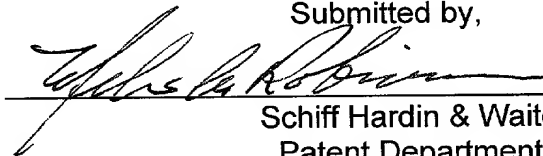
Hon. Assistant Commissioner for Patents
Washington, D.C. 20231

SIR:

Members of the firm of Hill & Simpson designated on the original Power of Attorney have merged into the firm of Schiff Hardin & Waite. All future correspondence for the above-referenced application therefore should be sent to the following address:

SCHIFF HARDIN & WAITE
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606

Submitted by,



(Reg. 31,870)

Schiff Hardin & Waite
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6600 Sears Tower
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ATTORNEYS FOR APPLICANT

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

98 112 144.5 Germany(EP) 30. Juni 1998
(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind

I hereby claim the benefit under Title 35 United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgegeben)

(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgeben)

(Status)
(patented, pending,
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Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und Registrationsnummer anführen)

POWER OF ATTORNEY As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number)

(19)

And I hereby appoint

Messrs. John D. Simpson (Registration No. 19,842), Lewis T. Steadman (17,074), William C. Stueber (16,453), P. Phillips Connor (18,259), Dennis A. Gross (24,410), Marvin Moody (16,549), Steven H. Noll (28,982), Brett A. Valiquet (27,841), Thomas I. Ross (29,275), Kevin W. Guynn (29,927), Edward A. Lehmann (22,312), James D. Hobart (24,149), Robert M. Barrett (30,142), James Van Santen (16,584), J. Arthur Gross (13,615), Richard J. Schwarz (13,472) and Melvin A. Robinson (31,870), David R. Metzger (32,919), John R. Garrett (27,888) all members of the firm of Hill, Steadman & Simpson, A Professional Corporation.

Telefongespräche bitte richten an:
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312/876-0200

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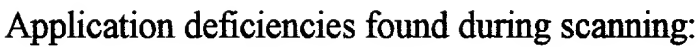
HILL, STEADMAN & SIMPSON
A Professional Corporation
85th Floor Sears Tower, Chicago, Illinois 60606

Voller Name des einzigen oder ursprünglichen Erfinders:		Full name of sole or first inventor:	
Stefan Schröder			
Unterschrift des Erfinders	Datum	Inventor's signature	Date
<i>Stefan Schröder</i>	8.1.99		
Wohnsitz		Residence	
D-80802 München, Germany DEX			
Staatsangehörigkeit		Citizenship	
Bundesrepublik Deutschland			
Postanschrift		Post Office Address	
Occamstraße 8			
D-80802 München			
Bundesrepublik Deutschland			
Voller Name des zweiten Miterfinders (falls zutreffend):		Full name of second joint inventor, if any:	
Unterschrift des Erfinders	Datum	Second Inventor's signature	Date
Wohnsitz		Residence	
Staatsangehörigkeit		Citizenship	
Postanschrift		Post Office Address	

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).

007227 250266

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☐ Page(s) _____ of _____ were not present
for scanning. (Document title)

❑ *Scanned copy is best available.*